

MODULAR AUTONOMOUS BOT APPARATUS ASSEMBLY FOR TRANSPORTING AN ITEM BEING SHIPPED

PRIORITY AND RELATED APPLICATIONS

[0001] The present application hereby claims the benefit of priority to related U.S. Provisional Patent Application No. 62/642,732 filed on Mar. 14, 2018 and U.S. Non-provisional patent application Ser. No. 16/351,642 filed on Mar. 13, 2019 entitled “Enhanced Apparatus, Assemblies, and Systems Involving a Modular Autonomous Logistics Vehicle Transport and Methods of Operating the Same.”

[0002] The present application is also related in subject matter to the following concurrently filed non-provisional patent applications where each also claims the benefit of priority to the same above-referenced provisional patent application: (1) Non-Provisional patent application Ser. No. 16/351,566 entitled “A Modular Mobility Base for a Modular Autonomous Logistics Vehicle Transport Apparatus”; (2) Non-Provisional patent application Ser. No. 16/351,576 entitled “A Modular Multiple Mobility Base Assembly Apparatus for Transporting an Item Being Shipped”; (3) Non-Provisional patent application Ser. No. 16/351,584 entitled “A Modular Auxiliary Power Module for a Modular Autonomous Bot Apparatus that Transports an Item Being Shipped”; (4) Non-Provisional patent application Ser. No. 16/351,590 entitled “A Modular Cargo Storage Apparatus for use on a Base Platform of a Modular Autonomous Bot Apparatus that Transports an Item Being Shipped”; (5) Non-Provisional patent application Ser. No. 16/351,634 entitled “A Detachable Modular Mobile Autonomy Control Module for a Modular Autonomous Bot Apparatus that Transports an Item Being Shipped”; (6) Non-Provisional Patent application Ser. No. 16/351,683 entitled “Methods of Performing a Dispatched Logistics Operation Related to an Item Being Shipped and Using a Modular Autonomous Bot Apparatus Assembly and a Dispatch Server”; (7) Non-Provisional patent application Ser. No. 16/351,573 entitled “Methods of Performing an Inventory Management Related Dispatched Logistics Operation for an Inventory Item and Using a Modular Autonomous Bot Apparatus Assembly and a Dispatch Server”; (8) Non-Provisional patent application Ser. No. 16/351,579 entitled “Methods of Performing a Dispatched Store-to-Consumer Logistics Operation Related to an Ordered Item and Using a Modular Autonomous Bot Apparatus Assembly and a Dispatch Server”; (9) Non-Provisional Patent application Ser. No. 16/351,587 entitled “Methods of Performing a Dispatched Consumer-to-Store Logistics Operation Related to an Item Being Replaced Using a Modular Autonomous Bot Apparatus Assembly and a Dispatch Server”; (10) Non-Provisional patent application Ser. No. 16/351,598 entitled “Methods of Performing a Dispatched Medical Logistics Operation Related to a Diagnosis Kit for Treating a Patient and Using a Modular Autonomous Bot Apparatus Assembly and a Dispatch Server”; (11) Non-Provisional patent application Ser. No. 16/351,604 entitled “Apparatus and Systems of a Modular Autonomous Cart Apparatus Assembly for Transporting an Item Being Shipped”; (12) Non-Provisional patent application Ser. No. 16/351,619 entitled “Apparatus, Systems, and Methods for Performing a Dispatched Logistics Operation for a Deliverable Item from a Hold-at-Location Logistics Facility Using a Modular Autonomous Bot Apparatus Assembly, a Dispatch Server and an Enhanced Remotely

Actuated Logistics Receptacle Apparatus”; (13) Non-Provisional patent application Ser. No. 16/351,681 entitled “Methods and Systems for Navigating to a Designated Shipping Location as Part of a Multi-Leg Logistics Operations using a Wireless Node Network and Multiple Node-Enabled Autonomous Transport Vehicles in the Network”; and (14) co-pending divisional Non-Provisional patent application Ser. No. 17/100,037 entitled “Enhanced Apparatus, Assemblies, and Systems Involving a Modular Autonomous Logistics Vehicle Transport and Methods of Operating the Same”.

FIELD OF THE DISCLOSURE

[0003] The present disclosure generally relates to systems, apparatus, assemblies, and methods in the field of logistics and, more particularly, to various aspects of enhanced systems, apparatus, assemblies, and methods related to deployment and use of a highly autonomous transport system that may include and leverage uses of elements of a multi-purpose type of modular autonomous logistics vehicle transport (MALVT) or node-enabled autonomous transport vehicle (AV), an assembly of such a multi-purpose type of modular autonomous logistics vehicle transport (MALVT) or node-enabled autonomous transport vehicle (AV), and systems that involve a multi-purpose type of modular autonomous logistics vehicle transport (MALVT) or node-enabled autonomous transport vehicle (AV).

BACKGROUND

[0004] In the technical field of logistics involving delivery and pickup of items and objects for transport between locations, existing systems have deployed delivery vans and courier personnel that manage and implement dispatched logistics operations to deliver and pickup of such items and objects from businesses and residential locations. However, deploying manually controlled logistics delivery vehicles and systems may incur

[0005] In general, autonomous and semi-autonomous vehicles that can move and maneuver from an origin location to a different location exist, but are not without problems in the field of logistics. For example, common autonomous or semi-autonomous logistics systems are less adaptive than needed. A particular autonomous logistics delivery vehicle may lack compatibility for specifically tasked logistics operations or the ability to efficiently handle a wide variety of different sized items/objects. Furthermore, known autonomous logistics delivery solutions may incur undesired waste involved with dispatching oversized delivery vehicles for a given logistics operation. The lack of interoperability with a location’s facilities and pathway obstacles are also problems that face common logistics delivery vehicles that are autonomously controlled.

[0006] To address these requirements and present further enhanced and improved devices, assemblies, systems, and methods for autonomous delivery or pickup of items/objects being shipped, there remains a need for improved systems that may provide more extensive, robust, adaptive, and interactive autonomous logistics vehicles that address such problems with a modular autonomous logistics bot apparatus as individual modular components of an assembly, as a particular assembly of such components, and systems of modular autonomous logistics vehicles that do so in a cost effective, dynamic, innovative solution that addresses such